January 10, 2003

RICIN FACT SHEET

What is Ricin?

Ricin is a potent toxin derived from beans of the castor plant (*Ricinus communis)*. The naturally occurring toxin is fairly easily removed from bean pulp remaining after castor oil extraction. Although ricin itself is not volatile, it may be formulated as a powder or an aerosol for intentional airborne dispersal. It is difficult to detect in human tissues or the environment. It can persist in the soil or environment for up to three days.

Has ricin poisoning ever occurred?

There has been relatively little human experience with the ricin toxin. It is known that poisoning can occur if ricin is inhaled, swallowed, or has been injected. Ricin poisoning has occurred in suicide attempts, following accidental eating of castor beans, and in acts or terrorism and assassination. It was used in World War II as a weapon. There is no evidence that ricin was used in the Iran-Iraq conflict or in the Gulf War.

How likely is it that ricin could be used as a terrorism agent?

Although ricin is relatively easy to extract from the castor bean, it is difficult to process into a particle size that would be effective to poison large numbers of people by inhalation.

In the very unlikely event that ricin exposure is suspected, environmental samples can be submitted to the Michigan Department of Community Health laboratory for analysis.*

What are the symptoms of ricin poisoning?

Symptoms of exposure depend on how much exposure occurred and how the person was exposed. Inhaled ricin is much more toxic than exposure through other routes. Symptoms would begin anywhere from 3 hours to several days.

- Breathing ricin initially causes flu-like symptoms such as cough, weakness, fever, nausea, muscle aches, difficult breathing. It can result in death from respiratory and circulatory failure.
- Exposure by eating causes nausea, vomiting, diarrhea, fever, and abdominal pain.

* The laboratory will accept environmental samples for testing only after approval has been given by the Bureau of Epidemiology, Michigan Department of Community Health.

- Ricin intoxication **cannot** be transmitted person to person.

How would a diagnosis be made?

The diagnosis of ricin is largely based on symptoms and should be suspected in a setting of mass casualties with a similar and appropriate clinical picture. Failure to respond to antibiotics helps to differentiate ricin exposure from lung infections produced by bacterial agents. Rapid progression to severe symptoms without response to antibiotics should alert a health care provider that non-infectious agents should be considered

Specialized clinical laboratory testing for ricin is available through the Michigan Department of Community Health.* Health care providers should contact their local health department immediately if they have a patient with an unusual flu-like illness that does not respond to antibiotics or see an unusual clustering of patients with similar symptoms.

What treatments are available?

There are no antidotes to ricin intoxication. Hospital care is necessary to support the victim and treat the effects of the toxin, such as support for breathing.

For additional information, contact the Michigan Department of Community Health's Office of Public Health Preparedness at (517) 335-8150 or Martha Stanbury at stanburym@Michigan.gov.

REFERENCES:

Public Information:

- Arizona Department of Health Services. Ricin. http://www.hs.state.az.us/phs/edc/edrp/es/ricinf.htm

- Texas Department of Health. Ricin as a Bioterrorist Agent. http://www.tdh.state.tx.us/bioterrorism/facts/ricin.html

- Wisconsin Department of Health & Family Services. Ricin Poisoning. http://www.dhfs.state.wi.us/healthtips/BCD/Ricin.htm .

Information for health care providers:

- US Army Office of the Surgeon General. NBC. Ricin. http://www.nbc-med.org/SiteContent/MedRef/OnlineRef/FieldManuals/medman/Ricin.htm .

- US Army Medical Research Institute of Infectious Diseases. Medical Management of Biological Casualties Handbook. Fourth Edition, February 2001. http://www.usamriid.army.mil/education/bluebook.html see p. 70.

- emedicine, Inc. Online Group Publishing Systems http://www.emedicine.com/emerg/topic889.htm

* The laboratory at the Centers for Disease Control and Prevention does the testing for ricin in clinical specimens. This testing must be arranged through the Bureau of Epidemiology, Michigan Department of Community Health.